

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

Claims 1-48 (canceled)

1 Claim 49 (currently amended): A method of desorbing a macromolecular analyte
2 from a probe surface comprising the steps of:

3 a) providing a **rigid and structurally self-supporting** probe that is
4 removably insertable into a **laser desorption ionization** mass spectrometer, the probe having a
5 surface for presenting the macromolecular analyte to **a laser desorption ionization** ~~at least one~~
6 ~~single~~ energy source that emits **laser** energy capable of desorbing and ionizing the
7 macromolecular analyte from the probe for analyte detection, wherein at least the surface
8 comprises a non-metallic-material selected from the group consisting of polystyrene,
9 polypropylene, polyethylene, polycarbonate, nylon, starch, agarose, and dextran, ~~wherein the~~
10 ~~probe for presenting the analyte is not associated with a separate sample holder; and~~

11 b) exposing the macromolecular analyte on the probe surface to energy from
12 **a laser desorption ionization** ~~at least one single~~ energy source, whereby the macromolecular
13 analyte is desorbed and ionized.

Claim 50 (canceled)

1 Claim 51 (currently amended): The method of claim ~~50~~ **49** further comprising
2 after step (b) the steps of:

3 c) modifying the macromolecular analyte chemically or enzymatically while
4 deposited on the probe surface; and

5 d) repeating step (b).

1 Claim 52 (currently amended): The method of claim ~~50~~ **49** wherein the probe
2 surface comprises an array of locations, each location having at least one macromolecular
3 analyte deposited thereon; and step (b) comprises desorbing and ionizing a first macromolecular
4 analyte from a first location in the array;
5 and wherein the method further comprises the step of (c) desorbing and ionizing a
6 second macromolecular analyte, from a second location in the array.

1 Claim 53 (currently amended): The method of claim ~~50~~ **49** further comprising
2 before step (b) the step of modifying the macromolecular analyte chemically or enzymatically
3 while deposited on the probe surface.

Claims 54-62 (canceled)

1 Claim 63 (currently amended): The method of claim ~~50~~ **49** wherein the
2 macromolecular analyte comprises a protein or a peptide.

1 Claim 64 (currently amended): A system for detecting a macromolecular analyte
2 comprising:

3 a removably insertable **rigid and structurally self-supporting** probe having a
4 surface for presenting the macromolecular analyte to **a laser desorption ionization** ~~at least one~~
5 ~~single~~ energy source that emits energy capable of desorbing and ionizing the macromolecular
6 analyte from the probe, wherein at least the surface comprises a non-metallic material selected
7 from the group consisting of polystyrene, polypropylene, polyethylene, polycarbonate, nylon,
8 starch, agarose, and dextran;

9 **a laser desorption ionization** ~~at least one single~~ energy source that directs **laser**
10 energy to the probe surface for desorbing and ionizing the macromolecular analyte, ~~wherein the~~
11 ~~probe for presenting the analyte is not associated with a separate sample holder; and~~
12 a detector in communication with the probe surface that detects the desorbed
13 macromolecular analyte.

1 Claim 65 (Currently amended): The system of claim 64 ~~which is a laser~~
2 ~~desorption-mass spectrometer~~ wherein:
3 ~~the energy source emits laser light that desorbs and ionizes the macromolecular~~
4 ~~analyte to produce an ion;~~
5 the system further comprises means for accelerating the ion to the detector,
6 the detector detects the ion, and
7 the system further comprises means for determining the mass of the ion.

Claims 66-85 (canceled)

1 Claim 86 (currently amended): A method for detecting a macromolecular analyte
2 comprising the steps of:

- 3 a) providing a system comprising:
4 (1) a removably insertable **rigid and structurally self-supporting**
5 probe having a surface for presenting the macromolecular analyte to **a laser desorption**
6 **ionization** ~~at least one single~~ energy source that emits energy capable of desorbing and ionizing
7 the macromolecular analyte from the probe, wherein at least the surface comprises a non-metallic
8 material selected from the group consisting of polystyrene, polypropylene, polyethylene,
9 polycarbonate, nylon, starch, agarose, and dextran, wherein the macromolecular analyte is
10 presented on the probe surface, ~~wherein the probe for presenting the analyte is not associated~~
11 ~~with a separate sample holder,~~
12 (2) **a laser desorption ionization** ~~at least one single~~ energy source
13 that directs **laser** energy to the probe surface for desorbing and ionizing the macromolecular
14 analyte; and
15 (3) a detector in communication with the probe surface that detects the
16 desorbed and ionized macromolecular analyte;
17 b) desorbing and ionizing at least a portion of the macromolecular analyte
18 from the surface by exposing the macromolecular analyte to energy from **the laser desorption**
19 **ionization** ~~at least one single~~ energy source; and

20 c) detecting the desorbed and ionized macromolecular analyte with the
21 detector.

1 Claim 87 (currently amended): The method of claim 86 wherein ~~the system is a~~
2 ~~laser desorption mass spectrometer wherein the energy source emits laser light that desorbs and~~
3 ~~ionizes the macromolecular analyte to produce an ion, the detector detects the ion and the system~~
4 further comprises means for accelerating the ion to the detector, and the method further
5 comprises determining the mass of the ion.

1 Claim 88 (previously presented): The method of claim 87 further comprising
2 before step (b) the step of modifying the macromolecular analyte chemically or enzymatically
3 while deposited on the probe surface.

1 Claim 89 (previously presented): The method of claim 87 further comprising
2 after step (c) the steps of:

3 d) modifying the macromolecular analyte chemically or enzymatically while
4 deposited on the probe surface; and
5 e) repeating steps b) and c).

1 Claim 90 (previously presented): The method of claim 87 wherein the probe
2 surface comprises an array of locations, each location having at least one macromolecular
3 analyte deposited thereon; and step (b) comprises desorbing and ionizing a first macromolecular
4 analyte from a first location in the array;

5 and wherein the method further comprises the step of:

6 d) desorbing and ionizing a second macromolecular analyte from a second
7 location in the array; and

8 e) detecting the desorbed and ionized second macromolecular analyte with
9 the detector.

Claims 91-100 (canceled)

1 Claim 101 (previously presented): The method of claim 87 wherein the
2 macromolecular analyte comprises a protein or a peptide.

 Claims 102-104 (canceled)

1 Claim 105 (currently amended): The method of claim ~~50~~ 49, wherein the
2 macromolecular analyte is a biomolecule.

1 Claim 106 (currently amended): The method of claim ~~50~~ 49, wherein the
2 macromolecular analyte is a biomolecule from an undifferentiated sample.

1 Claim 107 (currently amended): The method of claim ~~50~~ 49, wherein the
2 macromolecular analyte is a nucleic acid.

1 Claim 108 (previously presented): The system of claim 65, wherein the
2 macromolecular analyte is a biomolecule.

1 Claim 109 (previously presented): The system of claim 65, wherein the
2 macromolecular analyte is a biomolecule from an undifferentiated sample.

1 Claim 110 (previously presented): The system of claim 65, wherein the
2 macromolecular analyte is a protein or a peptide.

1 Claim 111 (previously presented): The method of claim 87, wherein the
2 macromolecular analyte is a biomolecule.

1 Claim 112 (previously presented): The method of claim 87, wherein the
2 macromolecular analyte is a biomolecule from an undifferentiated sample.

1 Claim 113 (previously presented): The method of claim 87, wherein the
2 macromolecular analyte is a protein or a peptide.

 Claims 114-119 (canceled)

1 Claim 120 (currently amended): The method of claim ~~50~~ 49, wherein the
2 macromolecular analyte is a carbohydrate.

1 Claim 121 (previously presented): The system of claim 65, wherein the
2 macromolecular analyte is a nucleic acid.

1 Claim 122 (previously presented): The system of claim 65, wherein the
2 macromolecular analyte is a carbohydrate.

1 Claim 123 (previously presented): The method of claim 87, wherein the
2 macromolecular analyte is a nucleic acid.

1 Claim 124 (previously presented): The method of claim 87, wherein the
2 macromolecular analyte is a carbohydrate.

1 Claim 125 (currently amended): The method of any of claims ~~49-53, 56, 57~~ 49,
2 51-53, 63, 105-107, 120 or 130-134 further comprising applying to the macromolecular analyte
3 ~~associated with~~ a matrix material for promoting desorption and ionization of the macromolecular
4 analyte on the surface.

1 Claim 126 (currently amended): The method of any of claims ~~64-71, 75, 76, 82~~
2 64-65, 108-110, 121, 122 or 137-141 further comprising applying to the macromolecular analyte
3 ~~associated with~~ a matrix material for promoting desorption and ionization of the macromolecular
4 analyte on the surface.

1 Claim 127 (currently amended): The method of any of claims ~~86-91~~ 86-90, 94,
2 95, 101, 111-113, 123, 124 or 144-148 further comprising applying to the macromolecular
3 analyte ~~associated with~~ a matrix material for promoting desorption and ionization of the
4 macromolecular analyte on the surface.

Claims 128-129 (canceled)

1 Claim 130 (previously presented): The method of claim 49 wherein the non-
2 metallic material is polystyrene.

1 Claim 131 (previously presented): The method of claim 49 wherein the non-
2 metallic material is polypropylene.

1 Claim 132 (previously presented): The method of claim 49 wherein the non-
2 metallic material is polycarbonate.

1 Claim 133 (previously presented): The method of claim 49 wherein the non-
2 metallic material is nylon.

1 Claim 134 (previously presented): The method of claim 49 wherein the non-
2 metallic material is dextran.

Claims 135-136 (canceled)

1 Claim 137 (previously presented): The system of claim 64 wherein the non-
2 metallic material is polystyrene.

1 Claim 138 (previously presented): The system of claim 64 wherein the non-
2 metallic material is polypropylene.

1 Claim 139 (previously presented): The system of claim 64 wherein the non-
2 metallic material is polycarbonate.

1 Claim 140 (previously presented): The system of claim 64 wherein the non-
2 metallic material is nylon.

1 Claim 141 (previously presented): The system of claim 64 wherein the non-
2 metallic material is dextran.

Claims 142-143 (canceled)

1 Claim 144 (previously presented): The method of claim 86 wherein the non-
2 metallic material is polystyrene.

1 Claim 145 (previously presented): The method of claim 86 wherein the non-
2 metallic material is polypropylene.

1 Claim 146 (previously presented): The method of claim 86 wherein the non-
2 metallic material is polycarbonate.

1 Claim 147 (previously presented): The method of claim 86 wherein the non-
2 metallic material is nylon.

1 Claim 148 (previously presented): The method of claim 86 wherein the non-
2 metallic material is dextran.